

What Is Claimed Is:

1. A method for manufacturing thin film devices, comprising the steps of:

irradiating white light onto an optically transparent film formed on the surface of a thin film device, in a process for polishing said optically transparent film;

detecting the reflected light from prescribed regions of the reflected light generated by said thin film device due to the irradiation of said white light; and

determining the thickness of said optically transparent film at said prescribed regions, by using the information from the spectral waveform of the reflected light from the prescribed regions thus detected.

2. The method for manufacturing thin film devices according to claim 1, wherein said prescribed regions are determined on the basis of previously measured information for the film thickness distribution of thin film devices processed by the same process as said thin device.

3. A method for manufacturing thin film devices, comprising the steps of:

irradiating white light onto an optically transparent film formed on the surface of a thin film device, in a process for polishing said optically transparent film;

detecting the reflected light generated by said thin film device due to the irradiation of said white light;

setting regions for measuring the film thickness using information for a characteristic quantity of the spectral waveform of the reflected light generated by said thin film device;

determining the thickness of said optically transparent film at said set regions, from information for the spectral waveform of the reflected light in the regions thus set; and

monitoring said polishing process by using the information for the thickness of the optically transparent film thus determined.

4. The method for manufacturing thin film devices according to claim 3, wherein said regions for measuring film thickness are determined using information such as said spectral waveform, or the reflectivity of the surface of said sample with respect to said white light, or the frequency spectrum in said spectral waveform, or the like.

5. A method for manufacturing thin film devices, comprising the steps of:

irradiating white light onto an optically transparent film formed on the surface of a thin film device, in a process for polishing said optically transparent film;

detecting the reflected light generated by said thin film device due to the irradiation of said white light, by time division;

setting prescribed regions for determining the film thickness from a characteristic quantity of the spectral waveform of the reflected light thus detected by time division;

determining the thickness of said optically transparent film on the basis of the spectral waveform of the reflected light from the prescribed regions thus set; and

monitoring said polishing process by using the information for the thickness of the optically transparent film thus determined.

6. The method for manufacturing thin film devices according to claim 5, wherein a plurality of prescribed regions for determining said film thickness are set, the film thickness at each of the plurality of regions thus set is determined, information relating to the film thickness distribution on said thin film device is obtained, and the said polishing process is monitored using the information relating to the film thickness distribution thus obtained.

7. A method for manufacturing thin film devices, comprising the steps of:

irradiating white light onto an optically transparent film formed on the surface of a thin film device, in a process for polishing said optically transparent film; detecting the reflected light generated by said thin film device due to the irradiation of said white light;

detecting the reflected light generated by said thin film device, by time division;

determining the thickness of said optically transparent film on the basis of the spectral waveform of the reflected light at prescribed positions based on a characteristic quantity of the respective spectral waveforms detected by time division; and

monitoring said polishing process by using the information for the thickness of the optically transparent film thus determined.

8. The method for manufacturing thin film devices according to claim 7, wherein the characteristic quantity of said spectral waveform is either the reflection intensity or the frequency spectrum intensity of said spectral waveform.